Claims

1. A method of providing data services to a mobile data device through a packet data service node system and a wireless data network, such method comprising the steps of:

exchanging data between the mobile data device and packet data service node system at least partially through the wireless data network using a tunneling protocol;

decoding the tunneling protocol within a programmers space of a general purpose computing platform of the packet data service node system;

determining an identity of the user from the decoded tunneling protocol; and

providing at least some data services to the identified user based upon a predetermined services list associated with the identified user.

2. The method of providing data services as in claim 1 further comprising retrieving a predetermined description of data services subscribed to by the identified user.

3. The method of providing data services as in claim 2 further comprising coupling data packets received from the mobile data device to a proxy application.

4. The method of providing data services as in claim 3 further comprising defining a set of characteristics of the proxy application from the predetermined description of data services.

5. The method of providing data services as in claim 4 further comprising downloading a services menu from the proxy application to the mobile data device.

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6. The method of providing data services as in claim 5 further comprising opening a billing file within the proxy application to track services actually provided to the user.

7. The method of providing data services as in claim 6 further comprising providing an e-mail selection option on the downloaded services menu.

8. The method of providing data services as in claim 7 further comprising downloading e-mail directed to the user upon selection by the user of the e-mail selection option.

9. The method of providing data services as in claim 8 further comprising incrementing the billing file for each downloaded e-mail.

10. The method of providing data services as in claim 6 further comprising providing a search selection option on the downloaded services menu.

11. The method of providing data services as in claim 10 further comprising uploading a search descriptor from the user upon selection by the user of the search option.

12. The method of providing data services as in claim 11 further comprising transferring the search descriptor from the user to a predetermined search engine based upon the predetermined description of services.

13. The method of providing data services as in claim 11 further comprising incrementing the billing file for each uploaded search descriptor.

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14. The method of providing data services as in claim 11 further comprising deleting at least some html data downloaded to the mobile data device.

15. The method of providing data services as in claim 11 further comprising defining the deleted html data downloaded to the mobile data device as advertising information.

16. The method of providing data services as in claim 1 wherein the step of exchanging data further comprises transcoding the exchanged data between a point to point protocol over Generic Routing Encapsulation over Internet Protocol and a Generic Routing Encapsulation over Internet Protocol within a user space of the packet data service node system.

17. The method of providing data services as in claim 16 wherein the step of transcoding further comprises transferring the point-to-Point Protocol over Generic Routing Encapsulation over Internet Protocol and Generic Routing Encapsulation over Internet Protocol to a point to point protocol conversion application.

18. The method of providing data services as in claim 17 further comprising transcoding between the Generic Routing Encapsulation over Internet Protocol and Internet Protocol within the user space.

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19. The method of providing data services as in claim 18 wherein the step of transcoding between the Generic Routing Encapsulation over Internet Protocol and Internet Protocol further comprises transferring the Generic Routing Encapsulation over Internet Protocol and Internet Protocol to a Generic Routing Encapsulation conversion application.

20. A method of servicing a mobile data device through a wireless data network, such method comprising the steps of:

exchanging data between the mobile data device and packet data service node system using a point to point Protocol over Generic Routing Encapsulation over Internet Protocol; and

transcoding the exchanged data between the point to point Protocol over Generic Routing Encapsulation over Internet Protocol and a Generic Routing Encapsulation over Internet Protocol within a user space of the packet data service node system.

21. The method of servicing a mobile data device through a wireless data network as in claim 20 wherein the step of transcoding further comprising transferring the point to point protocol over Generic Routing Encapsulation over Internet Protocol and Generic Routing Encapsulation over Internet Protocol to a point to point protocol conversion application.

22. The method of servicing a mobile data device through a wireless data network as in claim 21 further comprising transcoding between the Generic Routing Encapsulation over Internet Protocol and Internet Protocol within the user space.

23. The method of servicing a mobile data device through a wireless data network as in claim 22 wherein the step of transcoding between the Generic Routing Encapsulation over Internet Protocol and Internet Protocol further comprises transferring the Generic Routing Encapsulation over Internet Protocol and Internet Protocol to a Generic Routing Encapsulation conversion application.

24. The method of servicing a mobile data device through a wireless data network as in claim 1 further comprising caching packets received from a source web site for retransmission to the mobile data device.

25. The method of servicing a mobile data device through a wireless data network as in claim 1 wherein the step of caching packets further comprises caching TCP packets.

26. The method of servicing a mobile data device through a wireless data network as in claim 25 wherein the step of caching packets further comprises caching web pages.

27. The method of servicing a mobile data device through a wireless data network as in claim 1 further comprising transcoding packets within the programmers space.

28. The method of servicing a mobile data device through a wireless data network as in claim 1 further comprising reformatting images within the programmers space.

29. The method of servicing a mobile data device through a wireless data network as in claim 1 further comprising filtering data requests for parental control.

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30.   The method of servicing a mobile data device through a
wireless data network as in claim 1 further comprising
filtering packets received through an Internet connection
for firewall protection.

31.   The method of servicing a mobile data device through a
wireless data network as in claim 30 further comprising
deleting packets received through an Internet connection
meeting a predetermined pattern of attack criteria.

32.   The method of servicing a mobile data device through a
wireless data network as in claim 1 further comprising
performing network address translation.

33.   An apparatus for providing data services to a mobile
data device through a packet data service node system and a
wireless data network, such apparatus comprising:
        means for exchanging data between the mobile data
device and packet data service node system at least
partially through the wireless data network using a
tunneling protocol;
        means for decoding the tunneling protocol within a
programmers space of the packet data service node system;
        means for determining an identity of the user from the
decoded tunneling protocol; and
        means for providing at least some data services to the
identified user based upon a predetermined services list
associated with the identified user.

34.   The apparatus for providing data services as in claim
33 further comprising means for retrieving a predetermined
description of data services subscribed to by the identified
user.

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35. The apparatus for providing data services as in claim
33 further comprising means for coupling data packets
received from the mobile data device to a proxy application.

36. The apparatus for providing data services as in claim
35 further comprising means for defining a set of
characteristics of the proxy application from the
predetermined description of data services.

37. The apparatus for providing data services as in claim
36 further comprising means for downloading a services menu
from the proxy application to the mobile data device.

38. The apparatus for providing data services as in claim
37 further comprising means for opening a billing file
within the proxy application to track services actually
provided to the user.

39. The apparatus for providing data services as in claim
38 further comprising means for providing an e-mail
selection option on the downloaded services menu.

40. The apparatus for providing data services as in claim
39 further comprising means for downloading e-mail directed
to the user upon selection by the user of the e-mail
selection option.

41. The apparatus for providing data services as in claim
40 further comprising means for incrementing the billing
file for each downloaded e-mail.

42.   The method of providing data services as in claim 38 further comprising means for providing a search selection option on the downloaded services menu.

43.   The apparatus for providing data services as in claim 42 further comprising means for uploading a search descriptor from the user upon selection by the user of the search option.

44.   The apparatus for providing data services as in claim 43 further comprising means for transferring the search descriptor from the user to a predetermined search engine based upon the predetermined description of services.

45.   The apparatus for providing data services as in claim 43 further comprising means for incrementing the billing file for each uploaded search descriptor.

46.   The apparatus for providing data services as in claim 43 further comprising means for deleting at least some html data downloaded to the mobile data device.

47.   The apparatus for providing data services as in claim 43 further comprising means for defining the deleted html data downloaded to the mobile data device as advertising information.

48. The apparatus for providing data services as in claim
33 wherein the means for exchanging data further comprises
means for transcoding the exchanged data between a point to
point protocol over Generic Routing Encapsulation over
Internet Protocol and a Generic Routing Encapsulation over
Internet Protocol within a user space of the packet data
service node system.

49. The apparatus for providing data services as in claim
48 wherein the means for transcoding further comprises means
for transferring the point-to-Point Protocol over Generic
Routing Encapsulation over Internet Protocol and Generic
Routing Encapsulation over Internet Protocol to a point to
point protocol conversion application.

50. The apparatus for providing data services as in claim
49 further comprising means for transcoding between the
Generic Routing Encapsulation over Internet Protocol and
Internet Protocol within the user space.

51. The apparatus for providing data services as in claim
50 wherein the means for transcoding between the Generic
Routing Encapsulation over Internet Protocol and Internet
Protocol further comprises means for transferring the
Generic Routing Encapsulation over Internet Protocol and
Internet Protocol to a Generic Routing Encapsulation
conversion application.

52. An apparatus for providing data services to a mobile data device through a packet data service node system and a wireless data network, such apparatus comprising:

a wireless data network adapted to exchange data between the mobile data device and the packet data service node system using a tunneling protocol;

a tunneling CODEC adapted to decode the tunneling protocol within a programmers space of the packet data service node system;

an authentication application adapted to determine an identity of the user from the decoded tunneling protocol; and

a user application adapted to provide at least some data services to the identified user based upon a predetermined services list associated with the identified user.

53. The apparatus for providing data services as in claim 52 further comprising a data services file adapted to provide a predetermined description of data services subscribed to by the identified user.

54. The apparatus for providing data services as in claim 52 further comprising a proxy application adapted to coupling data packets between the mobile data device and a data source.

55. The apparatus for providing data services as in claim 54 further comprising a services menu adapted to be downloaded from the proxy application to the mobile data device.

56. The apparatus for providing data services as in claim 55 further comprising a billing file within the proxy application to track services actually provided to the user.

57. The apparatus for providing data services as in claim 56 further comprising an e-mail selection option on the downloaded services menu.

58. The apparatus for providing data services as in claim 55 further comprising means for providing a search selection option on the downloaded services menu.
search descriptor.

59. The apparatus for providing data services as in claim 58 wherein the wireless data network further comprises a tunneling CODEC adapted to transcode the exchanged data between a point to point protocol over Generic Routing Encapsulation over Internet Protocol and a Generic Routing Encapsulation over Internet Protocol within a user space of the packet data service node system.

60. The apparatus for providing data services as in claim 59 further comprising a data link CODEC adapted to transcode between the Generic Routing Encapsulation over Internet Protocol and Internet Protocol within the user space.